NCR:														
			i.									QA Closed:	Date:	
Nork Ord	er:						DISPOSITION				AGAINST D	EPARTMENT	/PROCESS	
Part I	No.				<u> </u>		Rework Scrap		ı	Skid-tube Machining	Crosstube Small Fab	-	Water Jet d. Eng. Coor.	Engineering Quality
NCR I	No.						Use-as-is Work Order Update			noforming Large Fab	Finishing Composite	Rec/Stor	re/Packaging Supplier	Other
Root					Des	cri	otion of work order update	ı	nitial	Act	ion	Sign &		
Cause		Date	Step	Qty		C	or Non-conformance	Ch	ief Eng	Descr	ription	Date	Verification	QC Inspector
oc/Data quip/Tooling perator laterial etup ther rocess upplier raining napproved				. (.				-		·				
	1	,		<u></u>			F.	<b>AUL</b>	T CATE	GORY		1	<u> </u>	
Landi	ng (	Gear					General							
	Landing Gear  Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion					Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing		Instruct Mainte Mislabe Misread Offset	on Incomplete ions Incomplete/U nance led	Jnclear	Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct sissing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other	
	Torque Waves in Extrusion Turning Sequence						  Finish		Out of S	lequence				

DQA:

Date:

Wave/Twist in Tube

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

November-07-12 3:03:19 PM

Revision ID:	D212-664-10				Accept	*N900	<u>0401</u>	<b>00*</b>	Setup Start Stop	*NS1* *NS2*
Start Date: Required Date: Reference:	11/07/12	Start Qty Req'd Qty		*1 *1		Cust Item Customer:	ID:			
Approvals:		an:		Date:			ate:	] 	Run Start Stop	"INK I"
Sequence ID/ Work Center II 130 *1 3 \(\Phi^*\) QC Quality Control		•		onal Check	Set Up/ Run Hours 0.00	Tool ID	Tool # F	Plan Accept Code Qty		Reject Insp. Number Stamp
*140 *140* Crosstubes Crosstubes			DT8549,using	drill table DT857	0.00  0.00  Dwg D212-664-141 using drill 77,set-up towers in hole #7 as pe	er QSI 10			Zu1°	Z-11-10
			DT8548 & DT to ensure align 3-Scribe part # 4-*** WEAR	8549.Check diminent with saddle and batch # usin LATEX GLOVE	ensions between holes, both side	es on both cuffs, 212-664-141 TUBE*** Deburr		<u>,</u>		

NCR:	Yes	/	No
IVCIV.	103	/	110

												DQA:	Date	:
NCR:	Yes	/ No					WORK ORDER NON-C	100	VFOR	MANCE / UP	DATE	•	<del></del>	
												QA Closed:	Date	<u>:</u>
Work Ord	er:						DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part !	No.						Rework Scrap			Skid-tube Machining	Crosstube Small Fab	4	Water Jet d. Eng. Coor.	Engineering Quality
NCR	No.						Use-as-is Work Order Update		inern	noforming Large Fab	Finishing Composite	Rec/Stor	re/Packaging Supplier	Other
Root					Desc	rip	otion of work order update		nitial	Act	tion	Sign &		
Cause		Date	Step	Qty		О	r Non-conformance	Ch	ief Eng	Desci	ription	Date	Verification	QC Inspector
oc/Data	L													
quip/Tooling	L_													
perator	_													
1aterial														
etup														
ther								ļ						
rocess														
upplier										•				
raining								ŀ						
napproved														
							F	AUL	T CATE	GORY				
Landi	ng (	Gear					General						· · ·	
	L	Bending					Bend		Grain			Ovalized	Γ	Pressure/Forced
		Centre No	t Concer	ntric to (	o/s		BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Centre Not Concentric to O/S Cracks						Broken/Damaged		Inspecti	on Incomplete		Part Incorred	ct	Weld
	Crushed/Crimped.				Burrs		Instruct	ions Incomplete/I	Unclear	Part Lost/Mi	issing	Wrong Stock Pulled		
	Cuffs				Contamination		Mainte	nance		Part Moved	_	<b>-</b>		
	Heat Treat				Countersink		Mislabe	led		Positioned V	Vrong			
		Inspection	Strip in	Tube	ľ		Cut Too Short		Misread	I		Power Loss/		Other
		Ripples in					Drill Holes		Offset			J '	·	
		Torque W		xtrusior	, t		Drawing	厂	ł	Calibration				
		Turning Se			<u> </u>		Finish	Г	1	equence			· · · · · · · · · · · · · · · · · · ·	

Wave/Twist in Tube

· ·											<del>2007 (</del> 21.22
Work Orde				*9270	)5*			··· <del></del>			Page 3
Item ID:	D212-664-10	01		Accept	*N900	<b>040</b>	100	<b>)</b> * s	Setup Star	rt *N	S1*
Revision ID:				4	14.707	.,—.,		•	Sto		` ' '
Item Name:	Crosstube Fw	d High	•						Sto	* <b>*N</b>	S2*
Start Date:	11/07/12	Start Qty: 1.00	*1*		Cust Item II	D:					
Required Date:	: 11/16/12	Req'd Qty: 1.00	*1*		Customer:						
Reference:			•					-	S4		
Approvals:	Process Pla	an:	Date:	Tooling:	Da	ıte:		ŀ	Run Sta	"IV	R1*
	QC:		Date:	SPC (Y/N):	Da	nte:			Sto	<sup>P</sup> *N	R2*
Sequence ID/ Work Center I	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150		QC5- Inspect part compl	eteness to step on W/O	0.00							
*150*											M 12-11.
QC		Memo		0.00							•
Quality Control		*** WEAR	LATEX GLOVES WHEN	I HANDLING CROSSTUBE	***						
160				0.00				-			
*160*								1	Ø		_ AR
HandFXtube		Memo		0.00					•	<del>-</del>	12-11-13
Hand Finishing Cro	osstubes	*** WEAR	LATEX GLOVES WHEN	N HANDLING CROSSTUBE	***						

1- CLEAN CROSSTUBE WITH WASH'N WIPE

170

Outsource process - NDT per QSI038 4.1

0.00

\*170\* Outsource2

0.00

Outsource process - NDT

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

Attach copy of NDT results to work order

(L/12/11/13)

										DQA:	Date:	
NCR:	Yes	/ No				WORK ORDER NON-O	100	NFOR	MANCE / UPDATE	·		,
	Rework Sking Mac North N				QA Closed:	Date:						
Nork Orde	er:					DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
	Part No.  NCR No.  Root ause Date Step Qty  Data Orrelator Prial Orrelator Part No.  Landing Gear Bending Centre Not Concentric to O/S					Scrap Use-as-is			Skid-tube Crosstube  Machining Small Fab  noforming Finishing  Large Fab Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
,,,,,,,	•••			_		Work Order opdate	_		composite[	_	Supplie!	J L_3
Root					Desc	ription of work order update		nitial	Action	Sign &		
Cause		Date	Step	Qty		or Non-conformance	Ch	ief Eng	Description	Date	Verification	QC Inspector
oc/Data quip/Tooling perator laterial etup ther rocess upplier raining										,		
napproved		]		L l			A 1 11	T CATE	CORV	<u> </u>		
Landi	nø G	Gear					AUL	CATE	GONT			
	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend				Bend BOM/Route Broken/Damaged Burrs Contamination Countersink		Hardwa Inspecti Instruct Mainte Mislabe Misread Offset	re ion Incomplete ions Incomplete/Unclear enance	Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ssing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other	
	Torque Waves in Extrusion Turning Sequence				` <b> </b>	Finish			Sequence			

Wave/Twist in Tube

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Work Orde				*927	'n5*					Page 4	ļ
Item ID: Revision ID:	D212-664-1			Accept	*N900	<b>040</b>	100	)* 5	Setup Start Stop	INCT	
Item Name: Start Date: Required Date: Reference:	Crosstube Fw 11/07/12 11/16/12	od High  Start Qty: 1.00  Req'd Qty: 1.00	*1* *1*		Cust Item II Customer:	D:				NO.	
Approvals:		an:				te:		]	Run Start Stop	"NRT"	
Sequence ID/ Work Center II 180 *180* Packaging Packaging	<b>D</b>	Operation Description Receive & Inspect for D Packaging  Memo Ensure copy	amage & Mat'l Certs  of NDT results attached	Set Up/ Run Hours 0.00 0.00 to work order.	Tool ID	Tool#	Plan Code	Accept Qty	Reject Qty	Reject Insp. Number Stamp	_ ノ
*1 QN* QC Quality Control			LATEX GLOVES WHE	0.00  0.00  N HANDLING CROSSTU						· · · · · · · · · · · · · · · · · · ·	

193

Crosstubes Chemical Conversion

0.00

\*103\*
HandFXtube

Memo

0.00

Hand Finishing Crosstubes

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN CROSSTUBE BEFORE CHEMICAL CONVERSION

												DQA:	Date:	· · ·
NCR:	Yes	/ No					WORK ORDER NON-	CO	NFOR	MANCE / UP	DATE			
												QA Closed:	Date	:
Work Ord	er:						DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part I	No.						Rework Scrap Use-as-is	L	1	Skid-tube Machining noforming	Crosstube Small Fab Finishing	4	Water Jet d. Eng. Coor. re/Packaging	Engineering Quality Other
NCR	No.			<del></del>	<del></del>		Work Order Update			Large Fab	Composite	]	Supplier	
Root					Des	cri	ption of work order update	Ī	Initial	Ac	tion	Sign &		
Cause		Date	Step	Qty		C	or Non-conformance	Cł	nief Eng	Desc	ription	Date	Verification	QC Inspector
oc/Data														
quip/Tooling					· ·									
perator			1											
/laterial														
etup								;				,		
Other														
rocess			1											
upplier														
raining														
Inapproved														
							F	AUI	T CATE	GORY			<u> </u>	
Landi	ng (	Gear					General							
		Bending					Bend		Grain			Ovalized		Pressure/Forced
		Centre No	t Concer	ntric to	o/s		BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Centre Not Concentric to O/S Cracks				Broken/Damaged		Inspecti	on Incomplete		Part Incorred	ct	Weld		
	Crushed/Crimped.				Burrs		1	ions Incomplete/	'Unclear	Part Lost/Mi	<u> </u>	Wrong Stock Pulled		
	Cuffs				Contamination		Mainte			Part Moved	· _	J		
	Heat Treat				Countersink		Mislabe	led		Positioned V	Vrong			
!		Inspection	n Strip in	Tube			Cut Too Short		Misread			Power Loss/		Other
		Ripples in					Drill Holes		Offset		<u>.                                    </u>			1
				xtrusio	า		Drawing		-1	Calibration				
	Torque Waves in Extrusion Turning Sequence						Finish		1	equence				

Wave/Twist in Tube

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November-07-12 3:03:19 PM

101011001-07-12	3.03.17 1 101										
Item ID: Revision ID:	D212-664-10	)1		Accept	*N900	<b>040</b>	100	)* s	Setup Start Stop	*N:	S1*
Item Name:	Crosstube Fwo	d High			•			,	Stop	*N.	S2*
Start Date:	11/07/12	Start Qty: 1.00	*1*		Cust Item I	D:				·	
Required Date:	11/16/12	<b>Req'd Qty:</b> 1.00	*1*		Customer:						
Reference:									S Ctowt		
Approvals:	Process Pla	ın:	Date:	Tooling:	Da	ate:		ŀ	Run Start	17	R1*
	QC:		Date:	SPC (Y/N): 4	Da	ate:		•	Stop	*N	R2*
Sequence ID/ Work Center II	)	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
195		QC7-Inspect Chemical	Conversion Coat	0.00	<b>?</b> \						
*195* QC		Memo		0.00	reluly						
Quality Control		*** WEAF	R LATEX GLOVES WHE	EN HANDLING CROSSTUI	BE***						
200		Spray Painting per QSI	005 4.2	0.00							
*200*		SprayPaint						1	Ø	d	A.O
SprayPaint		Memo		0.00					<u> </u>	<del>7</del>	12-11-13
Spray Painting		*** WEAI	R LATEX GLOVES WHI	EN HANDLING CROSSTU	BE***						
		1-Prime in	side and outside crosstub	e as per QSI 005 4.2							
		2-Paint ou QSI 005 4		O D212-667-141 with White	e Imron as per						
		Start Time	3.7888 2.11.30 3.2888								εÇ
		PAINT:   Start Time Finish Tim							Pt	o →	

NCR: Yes / No

# WORK ORDER NON-CONFORMANCE / UPDATE

DOA: Date: 121421

	QA Closed: A Date: / (										
Work Ord	er: (	3724	nS		DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Part NCR	No. 17 '	~ZO	19 19	1-101	Rework X Scrap Use-as-is Work Order Update		Skid-tube  Machining  moforming  Large Fab	Crosstube Small Fab Finishing Composite	Pro	Water Jet d. Eng. Goor. re/Packaging Supplier	Engineering Quality Other
Root				Descri	ption of work order update	Initial	Ac	tion	Sign &		
Cause	Date	Step	Qty	c	or Non-conformance	Chief Eng		ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved	ed Employing Employing With		Employ witho	nee Painted tube ut inspection on added.	asiar?	with ins	step = 200	DA 55% 12 11 16 12 12 12 12 12 12 12 12 12 12 12 12 12	12 lulia	0. > 7.042 12/11/19	
					F/	AULT CATE	GORY		•		
、Landi	ing Gear				General				=		:
	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped			o/s	Bend BOM/Route Broken/Damaged Burrs	Instruct	ion Incomplete tions Incomplete/	Unclear	Ovalized Over/Under Part Incorred Part Lost/Mi	ct	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled
	Cuffs Heat Treat			<b></b>	Contamination Countersink	Mainte			Part Moved Positioned V	Vrong	
	Heat Treat Inspection Strip in Tube				Cut Too Short	Misrea			Power Loss/:		Other
	Ripples	n Bend			Drill Holes	Offset		<u></u>			
	Torque '	Waves in I	Extrusio	<u> </u>	Drawing	Out of	Calibration				
	Turning	Sequence		X	Finish	Out of !	Sequence			·····	
	Wave/T	wist in Tul	be		Folio	Outside	Dimensions				

QC6- Inspect dimensions to drawing

OAS

12/11/19

Quality Control

230

QC

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\*

Memo

3- Torque bolts as per dwg

NCR: Ye													
					_					QA Closed:	Date	: 	
Nork Order	:				DISPOSITION				AGAINST D	EPARTMENT,	PROCESS		
Part No			-		Rework Scrap Use-as-is		Therm	Skid-tube Machining noforming	Crosstube Small Fab Finishing		Water Jet d. Eng. Coor. e/Packaging	Engineering Quality Other	
NCR No	o		-		Work Order Update	┛		Large Fab	Composite		Supplier	_	
Root Cause	Date	Step	Qty		iption of work order update or Non-conformance	- 1	nitial ief Eng		tion	Sign & Date	Verification	QC Inspector	
oc/Data quip/Tooling perator laterial etup ther roccess upplier raining napproved	ooling or al ser g												
·						AUL	T CATE	GORY					
Landing	_				General		1		_	<del></del> 1	_	_	
Bending Centre Not Concentric to O/S Cracks Crushed/Crimped. Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Waves in Extrusion Turning Sequence			Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing Finish		Instruct Mainte Mislabe Misread Offset Out of C	on Incomplete ions Incomplete/ nance led Calibration	'Unclear	Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ssing	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other			
	_l rurrining 5	equence		1	Lunan		LOUL OF 2	equence					

DQA:

Date:

Wave/Twist in Tube

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Work Orde				*927	'n5*							Page 7
Item ID:	D212-66	64-101		Accept	*N900	<u>040</u>	100	)* 9	Setup	Start	*N	<b>S1</b> *
Revision ID:					14.7070		• • • •	•		Stop		•
Item Name:	Crosstube	e Fwd High								Stop	*N	S2*
Start Date:	11/07/12	<b>Start Qty:</b> 1.00	*1*		Cust Item I	D:						
Required Date:	11/16/12	Req'd Qty: 1.00	*1*		<b>Customer:</b>							
Reference:			•							<b>~</b>		
Approvals:	Process	s Plan:	Date:	Tooling:	D	ate:		F	Run	Start	*N	R1*
			<b>.</b> .			ate:				Stop	*N	R2*
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Re Qt	•	Reject Number	Insp. Stamp
240		Pick Kit		0.00								
*740* Packaging		Memo		0.00				<u> </u>	_ <del></del>			P
Packaging											E	)-11-1
250		QC4- 100% Inspect kits	s for completeness	0.00	<u>`</u>							
*250*		QO 1 10070 mopoet kin		3-89	1							
QC QC		Memo		0.00 12/10	3			<u></u>	-			
Quality Control												

260

Packaging

Packaging

Packaging

Memo

0.00

Identify and pack for shipping as per PPP D212-664-101

0.00

Ship & Blullast

											DQA:	Date	:
NCR:	Yes	/ No				WORK ORDER NON-C	100	NFOR	MANCE / UPDATE		·		-
										(	QA Closed:	Date	:
Nork Ord	er:					DISPOSITION			AGAINST [	DEP	ARTMENT	/PROCESS	
Part NCR	No.					Rework Scrap Use-as-is Work Order Update		l	Skid-tube Crosstube Machining Small Fab noforming Finishing Large Fab Composite			Water Jet d. Eng. Coor. e/Packaging Supplier	Engineering Quality Other
								<u></u>		_			
Root		Data	Chair		Des	otion of work order update	1	nitial	Action		Sign &	Verification	OC Inspector
Cause oc/Data	Γ	Date	Step	Qty		 or Non-conformance	Cn	ief Eng	Description	$\dashv$	Date	verincation	QC Inspector
quip/Tooling													
perator													
1aterial													
etup													
ther										ļ			
rocess													
upplier													
raining													
napproved													
						F	AUL	T CATE	GORY				
Land	ng (	Gear			_	General		_	_				
	L	Bending				 Bend		Grain			Ovalized		Pressure/Forced
		Centre No	t Concer	ntric to (	o/s [	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
		Cracks				Broken/Damaged		Inspect	ion Incomplete		Part Incorre	ct	Weld
		Crushed/0	Crimped.		ſ	Burrs		Instruct	ions Incomplete/Unclear		Part Lost/Mi	ssing	Wrong Stock Pulled
	Г	Cuffs			ſ	Contamination		Mainte	enance		Part Moved		
		Heat Trea	t			Countersink		Mislabe	eled		Positioned V	Vrong	
		Inspection	n Strip in	Tube	Ī	Cut Too Short		Misrea	d [		Power Loss/	Surge	Other
		Ripples in	Bend			Drill Holes		Offset	•			_	
		Torque W	aves in E	xtrusior	1	Drawing		Out of	Calibration	•			
		Turning Se	equence			Finish		Out of	Sequence	•			

Wave/Twist in Tube

Work Ord November-07-1				*92	705*			Page
Item ID: Revision ID:	D212-664-			Accept	*N900040100*	Setup	Start Stop	*NS1*
Item Name:	Crosstube Fv	· ·	<b>44</b> 4				July	*NS7*
Start Date:	11/07/12	Start Qty: 1.00	*1*		Cust Item ID:			
Required Date Reference:	: 11/1 <b>6</b> /12	Req'd Qty: 1.00	*1*		Customer:		<b>.</b>	
Approvals:	Process P	lan:	Date:	Tooling:	Date:	Run	Start	*NR1*
••	QC:		Date:	<b>SPC (Y/N):</b>	Date:		Stop	*NR2*
Sequence ID/	-	Operation		Set Up/	Tool ID Tool # Plan Acc	ept Re	ject l	Reject Insp.

**Run Hours** 

0.00

0.00

**Work Center ID** 

\*270\*

Quality Control

270

Description

QC21- Final Inspection - Work Order Release

Memo

MS 12-11-19 W1216.19

Qty

Qty

Code

Page 8

Number Stamp

											DQA:	Date:	•
NCR:	⁄es	/ No				WORK ORDER NON-	100	NFOR	MANCE / UPI	DATE	•		
											QA Closed:	Date:	
Work Orde	٠r٠					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
WOIK OIG	-1.			· ··········		Rework	7		Skid-tube	Crosstube	]	Water Jet	Engineering
Part N	۷o.					Scrap			Machining	Small Fab	Pro	d. Eng. Coor.	Quality
						Use-as-is		Thern	noforming	Finishing	Rec/Stor	re/Packaging	Other
NCR f	No.		<del></del>			Work Order Update	ال		Large Fab	Composite	j	Supplier	] [_]
Root	•				Descri	iption of work order update	T 1	nitial	Act	tion	Sign &		
Cause		Date	Step	Qty		or Non-conformance	1	ief Eng	· ·	ription	Date	Verification	QC Inspector
oc/Data													
quip/Tooling		,											
perator													
/laterial													
etup									1				
ther													
rocess													
upplier													
raining			:										
Inapproved											<u> </u>	L	
							AUL	T CATE	GORY				
Landi	_	1			_	General □ .	_	1		F	7		
		Bending			. <b>L</b>	Bend	-	Grain		_	Ovalized	. <b>-</b>	Pressure/Forced
		Centre No	ot Concer	ntric to	o/s  _	BOM/Route	<b> </b>	Hardwa		<u> </u>	Over/Under	-	Temperature/Cure
		Cracks				Broken/Damaged	-	1 '	ion Incomplete		Part Incorred	<del> </del>	Weld
		Crushed/0	Crimped,			Burrs	$\vdash$	1	ions Incomplete/l	Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled
		Cuffs			<u> </u>	Contamination	-	Mainte		<u> </u>	Part Moved		
		Heat Trea			<u> </u>	Countersink	-	Mislabe	•	_	Positioned V		7
		Inspection		Tube	<u> </u>	Cut Too Short	<u> </u>	Misread	d	L	Power Loss/	Surge	Other
		Ripples in			lacksquare	Drill Holes		Offset					
		Torque W		extrusio	n	Drawing	<u> </u>	4	Calibration				
		Turning Se			_	Finish		1	Sequence				
		Wave/Tw	ist in Tub	oe -		Folio	-	Outside	Dimensions				

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# **Picklist Print**

November-07-12 3:03:18 PM

Work Order ID:

92705

Parent Item:

D212-664-101

Parent Item Name:

Crosstube Fwd High

**Start Date:** 11/07/12

Required Date: 11/16/12

Page 1

Start Qty: 1.00

Required Qty: 1.00

**Comments:** 

IPP Rev:E04.02.16ReformatKJ/DS

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM

JLM

IPP Rev:G 07-04-30 As per Rev C strip ecn 11-549 EC verified by:DD

IPP Rev:H 11.04.26 inspection

	strip ecn 11-549 E	C verified by:DD											
Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D212-664-101TRN Crosstube Turning Detail		Manufactured	No			110	Each	2.0000	1	1			
				<b>Location</b>		Loc Qty	Lo	oc Code					
				LG		2							
				89	875 876	1 1				<b>D</b>	mo	12,	/11/08 11-檀门
D3595-063-450 RUBBER CUSHION		Manufactured	No			230	Each	219.8895	4	4.21052	63 Af	12-	)1~售门
				Location		Loc Qty	Le	oc Code					
				FG		5							
				88	422	5							
				LG		0.28					•		
				82	511	0.28							
				LG051		179.5							
				80	161	1.7							
				84	715	2							
					478	130							
					916	1.8				<u> </u>			
					968	44				<i>1)</i> —			
				MAT052		35.109474			***				
					7353	2				<del>-</del>			
					8893	6				<del></del>			
					0113	0.56							
					354	0.2							
					1113	0.349474							
					5597	1			<del></del>	<del></del>			
				9,	2056	25							

											DQA:	Date	:
NCR:	Yes /	No				WORK ORDER NON-	CO	NFORM	MANCE / UPDATE		QA Closed:	Date	::
Marile Ond						DISPOSITION			AGAI	NST DE	PARTMENT		
Work Ord Part I NCR I	— No					Rework Scrap Use-as-is Work Order Update		Thern	Skid-tube Crosst  Machining Small  noforming Finish  Large Fab Compo	Fab	4	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root		:			Descri	ption of work order update		Initial	Action		Sign &		
Cause		Date	Step	Qty		or Non-conformance	Cl	nief Eng	Description		Date	Verification	QC Inspector
Doc/Data	Ш												
Equip/Tooling	Ш		į										
Operator	Ш												
Material	Ш												
Setup													
Other													
Process													
Supplier													
Training													
Unapproved													
						1	AU	LT CATE	GORY				
Landi	ing Ge	ar				General		_		_	_		_
	Ве	ending				Bend	L	Grain			Ovalized		Pressure/Forced
	C	entre No	t Conce	ntric to	o/s	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Cr	acks				Broken/Damaged		Inspecti	on Incomplete		Part Incorre	ct	Weld
}	Cr	ushed/0	Crimped.			Burrs		Instruct	ions Incomplete/Unclear		Part Lost/M	issing	Wrong Stock Pulled
ł	$\Box_{c_1}$	ıffs				Contamination		Mainte	enance		Part Moved	_	

Mislabeled

Out of Calibration

Out of Sequence

Outside Dimensions

Misread

Offset

Positioned Wrong

Power Loss/Surge

Other

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

November-07-12 3:03:18 PM

Work Order ID:	92705						<b>Q</b> .	11/05/10			S.D. 4 11/17/12
Parent Item:	D212-664-101							t Date: 11/07/12		_	Date: 11/16/12
Parent Item Name:	Crosstube Fwd High						Sta	rt Qty: 1.00		Require	d Qty: 1.00
MS21920-25 Clamp(per MIL-DTL-87	783C)	Purchased	No		220	Each	103.0000	4	4	Ad	12-11-17
•				Location	Loc Qty		Loc Code				
				FG	2						
				120920	2						
				LG050	74						
				116264	2.						
				117998	4						
				118142	4					•	
				119339	2						
				119746	2				_		
				120475	3						
				120920	7			<del></del>			
				123243	50				_		
				LG051	27						
				122838	27			_(4)_			
D2893-1		Manufactured	No		220	Each	29.0000	2	2	A	12-11-17
75 Support										7	10-11-1/
				<b>Location</b>	Loc Qty		Loc Code				
				LG052	29						
				72865	2						
				87289	7						-
		•		89624	20						
D3428-11 S	· 24	Manufactured	No		240	Each	0.0000		1	$\circ$	3000
Placard	<i>, ∞ ≯</i>							Carron - 14		-12	73447
AN6-35A		Purchased	No		240	Each	42.0000	4	4	12	11 20.
BOLT		Turchuseu							$\mathcal{O}_{-}$	19-	11-19
				Location	Loc Qty		Loc Code		<b>)</b> \	, –	
<~.	ns 250						<u> Loc Couc</u>				
٥r	112 XX			342	l 1				_		
				121181	1						
				ST340	41						
				122416	21			<del>-7</del> 4	<del></del>		
•	•			122800	20						

NCR:	Yes	/	No

													,
											DQA:	Date:	•
NCR:	Yes	/ No				<b>WORK ORD</b>	ER NON-CO	ONFOR	MANCE / UF	PDATE			
		,							, , , , , , , , , , , , , , , , , , , ,		QA Closed:	Date:	•
Nork Ord	or.					DISPOS	ITION			AGAINST DE	PARTMENT	/PROCESS	
WOIK OIU	ei.						Rework		Skid-tube	Crosstube	7	Water Jet	Engineering
Part	Nο						Scrap		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
· urc							Use-as-is	Ther	moforming	Finishing	-	re/Packaging	Other
NCR	No.					Work Orde			Large Fab	Composite	1	Supplier	
							'		, П			· · · · · · · · · · · · · · · · · · ·	
Root					Desc	ription of work ord	er update	Initial	Α	ction	Sign &		
Cause		Date	Step	Qty		or Non-conforma	nce	Chief Eng	Des	cription	Date	Verification	QC Inspector
oc/Data	L												
quip/Tooling	L												
perator	<u></u>												
laterial	<u>_</u>												
etup	<u> </u>												
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upplier	$\vdash$	}											
raining	$\vdash$												
napproved	<u> </u>	1	.i				FΔ	ULT CATI				1	1
Land	ing (	Gear				General		021 07111					<del></del>
	Ť	Bending			ſ	Bend		Grain		Г	Ovalized		Pressure/Forced
		Centre No	ot Concer	ntric to (	o/s	BOM/Route	<u> </u>	Hardw	are		Over/Under	tolerance	Temperature/Cure
		Cracks			ľ	Broken/Damage	d T	Inspec	tion Incomplete		Part Incorre	ct	Weld
		Crushed/	Crimped,		ļ	Burrs		_	tions Incomplete	e/Unclear	Part Lost/M	issing	Wrong Stock Pulled
		Cuffs				Contamination		Maint	enance		Part Moved		_
		Heat Trea	at			Countersink		Mislab	eled		Positioned \	Wrong	_
		Inspection	n Strip in	Tube		Cut Too Short		Misrea	ıd		Power Loss/	/Surge	Other
		Ripples in	Bend			Drill Holes		Offset					
	L	Torque W	Vaves in E	Extrusion	۱ [	Drawing		Out of	Calibration				
	1	Turning S	eauence			Finish		Out of	Sequence				

Wave/Twist in Tube

November-07-12 3:03:10 PM

Vork Order ID: Parent Item: Parent Item Name:	92705 D212-664-101 Crosstube Fwd High						art Date: 11/07/12 tart Qty: 1.00	Required Date: 11/16/12 Required Qty: 1.00
N6-36A Solt		Purchased	No		240 <sub>s</sub> Ea	ach 59.0000	4	\$ 5
				<b>Location</b>	Loc Qty	Loc Code		, · · · · · · · · · · · · · · · · · · ·
				ST340	49			
Sw	.^			122416	3			
				122993	46			
9	IT .			ST342	10			_
	(			118422	2			
	•			119449	1			_
				120187	4			
				120423	3			1
1521 <u>0421/6</u> Nut		Purchased	No			ach 892.0000	6	SP. 3
•				<b>Location</b>	Loc Qty	Loc Code	•	
				314	153			<u>_</u>
				122441	153		<u></u>	ĸ
	$\alpha \rightarrow \alpha$			ST300	239			
$\supset_{\mathcal{U}}$	B DA			117677	25		-	
				118384	3			<del></del>
				118927	48			_
				119075	4			_
				120308	159			
/				ST314	500			<del></del>
1				123248	350			<del>_</del> .
				123355	150			<del></del>
AN960JD616 Washer	NAS1149D0663J	Purchased	No		240 E	Sach 0.0000	18 M	123265 12-11-17.
	BA							11-4

												DQA:	Da	ate:	
NCR:	Yes	/ No				WORK ORDER NON-	COI	NFORM	MANCE / UF	PDATE					
						<b>T</b>						QA Closed:	Da	ate:	
Work Ord	er.					DISPOSITION				AGAINST	DE	PARTMENT	/PROCESS		
Part   NCR	No.					Rework Scrap Use-as-is Work Order Update		Therm	Skid-tube  Machining  noforming  Large Fab	Crosstube Small Fab Finishing Composite		4	Water Jei d. Eng. Coor re/Packaging Supplie		Engineering Quality Other
Root			1		Descri	ption of work order update		Initial	A	ction	_	Sign &			
Cause		Date	Step	Qty	1	or Non-conformance	Ch	nief Eng	Des	cription		Date	Verification	on !	QC Inspector
Doc/Data															
Equip/Tooling			}											ļ	
Operator							1								
Material															
Setup														1	
Other							1								<b> </b>
Process							1								
Supplier															
Training															
Unapproved			<u> </u>												
		<del></del>				F	AUI	LT CATE	GORY						
Landi	ing (	Gear				General	_	-				_			•
		Bending				Bend	L	Grain	-		<b></b>	Ovalized		L	Pressure/Forced
		Centre No	ot Conce	ntric to	O/S	BOM/Route		Hardwa	re			Over/Under	tolerance	L	Temperature/Cure
		Cracks				Broken/Damaged	L	-	on Incomplete		<b>_</b>	Part Incorre	ct	L	Weld
		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete	/Unclear	<u> </u>	Part Lost/M	issing		Wrong Stock Pulled
1	1	Cuffs			1	Contamination	1	Mainte	nance		ı	Part Moved			

Mislabeled

Out of Calibration

Outside Dimensions

Out of Sequence

Misread

Offset

Positioned Wrong

Power Loss/Surge

Other

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

Countersink

Cut Too Short

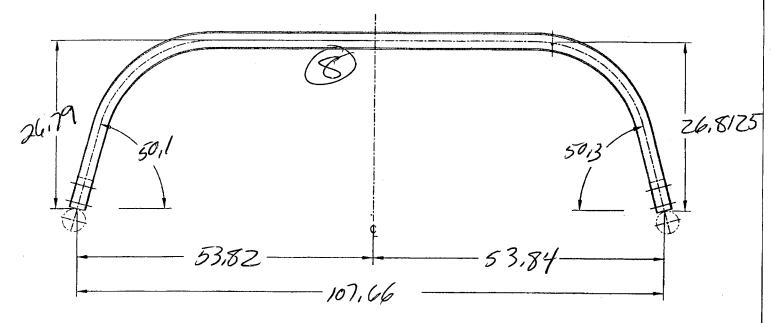
Drill Holes

Drawing

Finish

DART AEROSPACE LTD	Work Order:	92705
Description: Crosstube High Fwd (205/212/412)	Part Number:	D212-664-101
Inspection Dwg: D212-664-141 Rev: D	· · · · · · · · · · · · · · · · · · ·	Page 1 of 1

Required Dimension	Min	Max
Height	26.79	27.05
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.7
Bending Passes	3	
Crushing		6%



	Side A	Side B
Bending Passes	8	8
Crushing	11759/2	3.5/0/0/
	Comments	7-04/0
	DAC	
	03 /	\ \( \delta \)
QC15 Inspec	ction 89	
Date		11-0
QC15 Inspec	ction 89	) <i>(</i> } \-//-&

Rev	Date	Change	Revised by	Approved	
Α	07.02.06	New Issue	KJ/JM	''	
В	08.04.21	Dwg Rev updated	KJ/JM		
С	10.04.01	Dwg Rev updated	KJ . O.		
D	12.04.16	Added bending, crushing dimensions	KJ 🖎	W	
			1/1		



Item	Qty -141	Qty -141B	Part Number	Description
1 2	х	X	D212-664-141 D212-664-141B	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD) CROSSTUBE ASSEMBLY (214 HIGH FWD)
			D212-004 141B	CROSS TOBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

#### **GENERAL NOTES:**

D

С

В

- 1) MATERIAL: MANUFACTURED FROM D6005-128 FINISHED LENGTH = 126.514±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS
- WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)
  - D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03° TO 0.06° THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

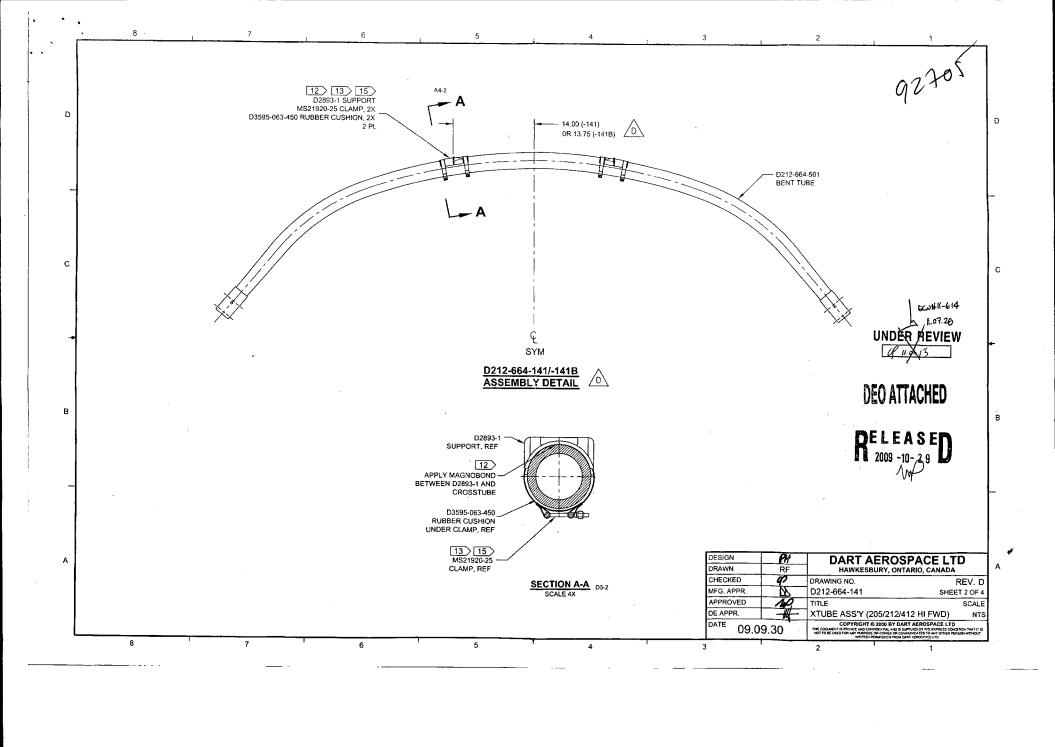
SHOP COPY RETURN TO ENGINEER (14) UNCONTROLL ED COPY SUBJECT TO AMENDMENT WITHOUT NOTICE

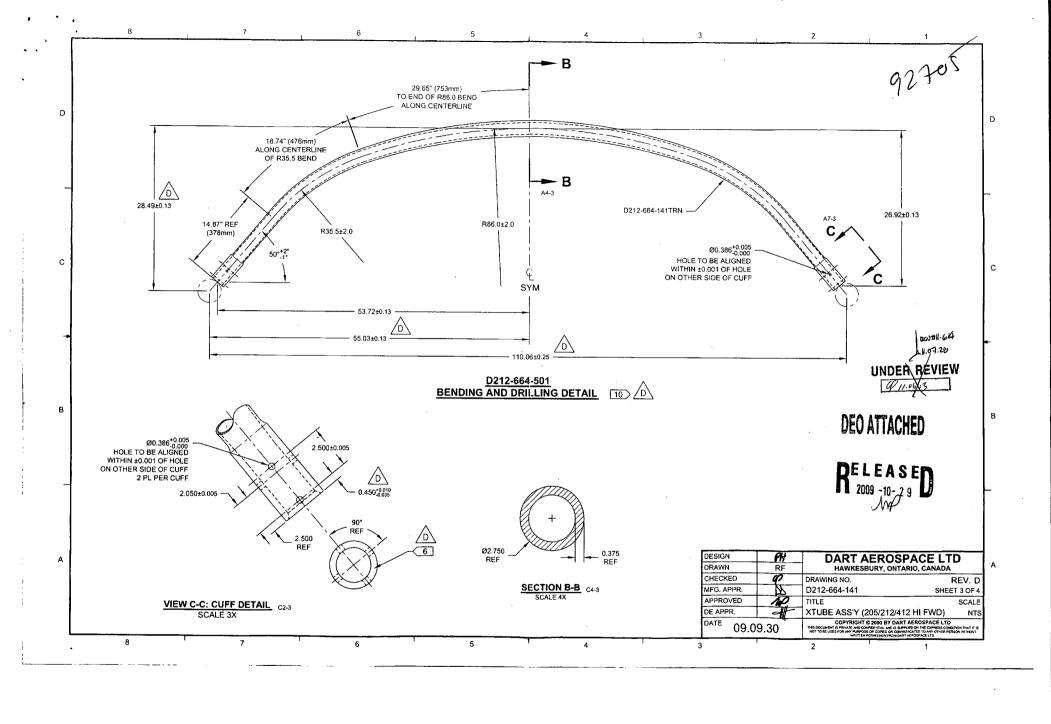
WORK ORDER MCS

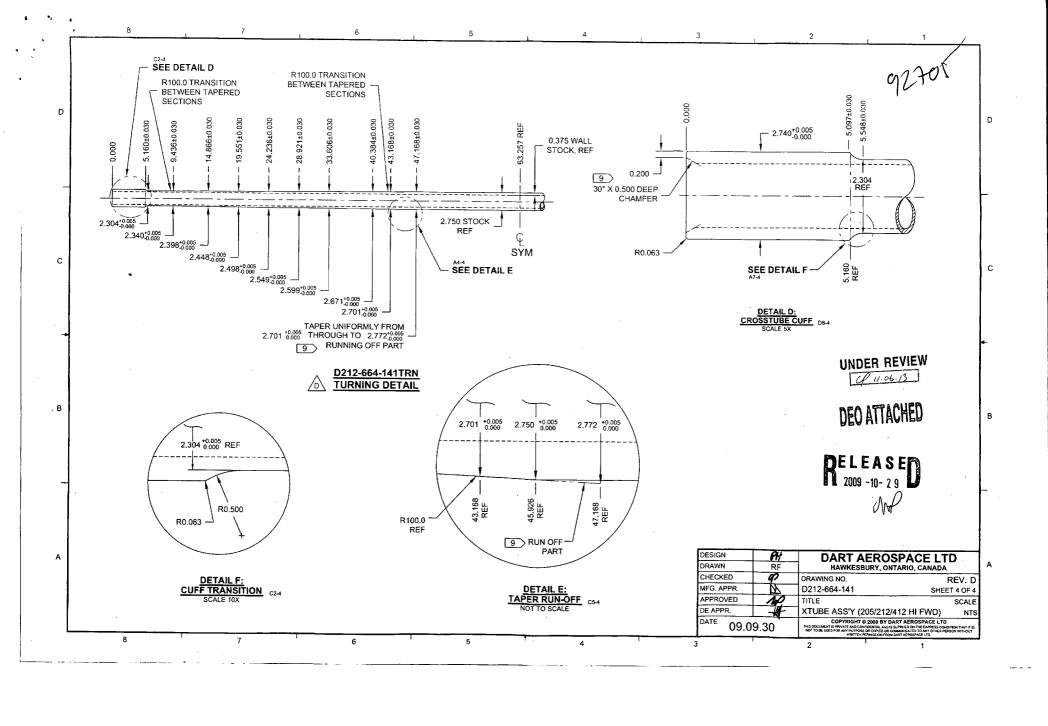
REHAVED FROM UNDER REVIEW PER 12-11-08 UNDER BEVIEW BENHIN-GIA

**DEO ATTACHED** 

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -1418 (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, C6-3, 6-3); & 66-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE, TO SHEET 4						
С		VE -851 ABRA CUSHION, REV	PH	07.03.08			
В.	ADD H SKIDTI		DMPATABILITY WITH BHT/AA	PH	05.02.04		
Α	NEW IS	SSUE	PH	00.12.12			
REV.			DESCRIPTION	BY	DATE		
DESIGN		PH	DART AEROSPA	ACF	ITD		
DRAWN		RF	HAWKESBURY, ONTARI				
CHECK	ED	P	DRAWING NO.		REV. D		
MFG. AF	G. APPR.		D212-664-141				
APPRO	/ED	10	TITLE SCA				
DE APPR.			XTUBE ASS'Y (205/212/412 HI FWD) NTS				
DATE 09.09.30			COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONTINENT AUG IS SUPPLYED ON THE EXPRESS CONCIDENT THAT IT IS NOT TO BE USED FOR ANY PURPOSE ON CONSIDERATE TO ANY OTHER PERSON WITHOUT				







DRAWING NO.	TITLE	RE	DART AEROSP	ACE LTD D.E.O. NO.		SHEET NO.	SCALE
D212-664-141	XTUBE ASSY (	205/212/412 HI FWI	) ENGINEERING		4-141 <sub>-</sub> D-1	SHEET 1 OF 2	NTS
DRAWN	CH	ECKED //	MFG. APPR. 🗷	APPROVED	MP.	DE APPR.	
DATE 11.04	.07 DA	TE 1), (7)	)) DATE ((.04.	(Z DATE	11/04/12	DATE 11.04.12	

ADD AN INSPECTION WINDOW TO UNDERSIDE OF CROSSTUBE.

CHANGE:

NOTES 2 OF SHEET 1 IS AMENDED AS FOLLOWS:

<u>IS:</u>

FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND

PAINT OUTSIDE PER DART QSI 005 4.2 REMOVE MASKING AND APPLY CLEAR COAT

WAS:

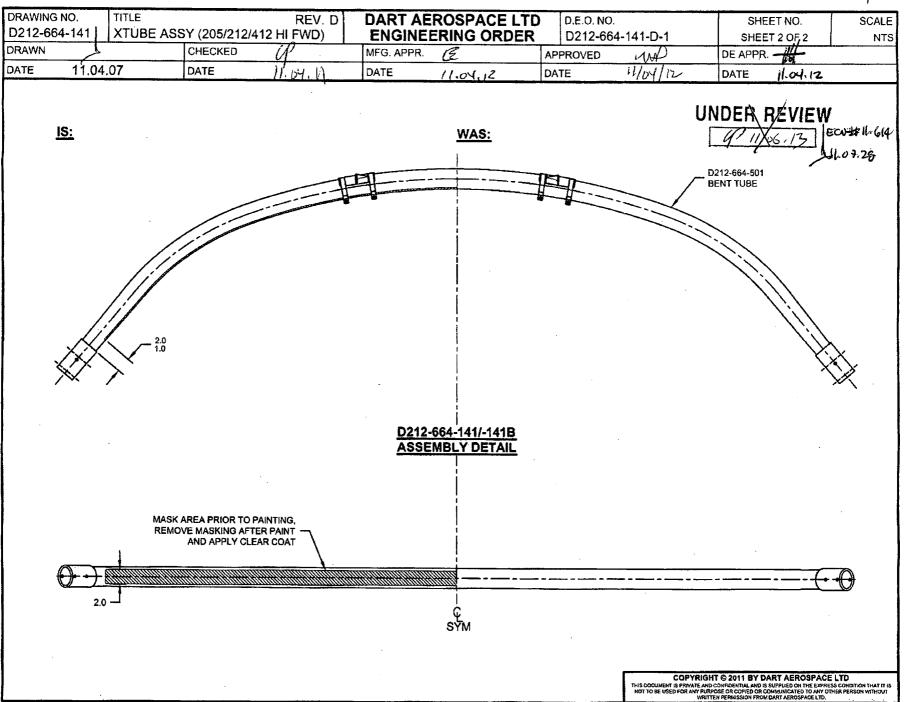
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

PAINT OUTSIDE PER DART QSI 005 4.2

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WINDTEEN PERMISSION FROM DART AEROSPACE LTD.



DRAWING NO.	TITLE REV. D	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D212-664-141	CROSSTUBE ASS'Y (205 HI FWD)	<b>ENGINEERING ORDER</b>	D212-664-141-D-2	SHEET 1 OF 1	NTS
DRAWN //	CHECKED A>S	MFG. APPR.	APPROVED N	DE APPR.	
DATE 11.07.	15 DATE /1.07.20	DATE 11.07.21	DATE 11/07/2)	DATE 11.07.21	

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

#### CHANGE:

IS:

Item	Qty -141	Qty -141B	Part Number	Description
7	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

#### WAS:

7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023
•	ĺ			ADHESIVE (TEXTRON/BELL SPEC. 299-947-100.
				TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

- 12) TO INSTALL D2893-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

#### WAS:

- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



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1 0					,	
SCALE	SHEET NO.	D.E.O. NO.	DART AEROSPACE L	REV. D	AWING NO. TITLE	
NTS	SHEET 1 OF 1	D212-664-141-D-3	ENGINEERING ORDE	Y (205/212/412 HI FWD)	12-664-141 XTUBE A	D
	DE APPR.	APPROVED 16	MFG. APPR.	CHECKED 9	AWN AJS	DF
	DATE 12.07.05		DATE 12.07.05	DATE 12.07.05	†E 12.06.28	DΑ
	DATE 12.07.05			DATE 12.07.05	TE 12.06.28	DΑ

#### PURPOSE:

ADD NEW CONFIGURATION WITH ANODIZED FINISH

#### ADD -141F CONFIGURATION TO PARTS LIST AS SHOWN BELOW:

Item	Qty -141	Qty -141B	Qty -141F	Part Number	Description
1	Х			D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X		D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
			Х	D212-664-141F	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD) (ANODIZED)
3	1	1	1	D6005-128	CROSSTUBE
4	2	2	2	D2893-1	SUPPORT
5	4	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

\*NOTE ITEM 7 HAS BEEN UPDATED IN ACCORDANCE WITH DEO D212-664-141-D-2

#### **AMEND NOTE 2 AS FOLLOWS:**

IS:

2) FINISH -141 & -141B ONLY: a) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

b) PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

c) MASK UNDERSIDE OF CROSSTUBE AS SHOWN IN DEO D212-664-141-D-1

d) PAINT OUTSIDE PER DART QSI 005 4.2

e) REMOVE MASKING AND APPLY MATTE CLEAR COAT

FINISH -141F: a) ANODIZE PER MIL-A-8625, TYPE II. CLASS 1.

b) ALODINE (DO NOT ETCH) PER QSI 005 4.1.2

c) PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

d) MASK UNDERSIDE OF CROSSTUBE AS SHOWN IN DEO D212-664-141-D-1

e) PAINT OUTSIDE PER DART QSI 005 4.2

f) REMOVE MASKING AND APPLY MATTE CLEAR COAT

**"NOTE: BETWEEN FINISHING OPERATIONS EXTREME CARE MUST BE TAKEN** NOT TO CONTAMINATE OR DAMAGE FINISHED SURACES.

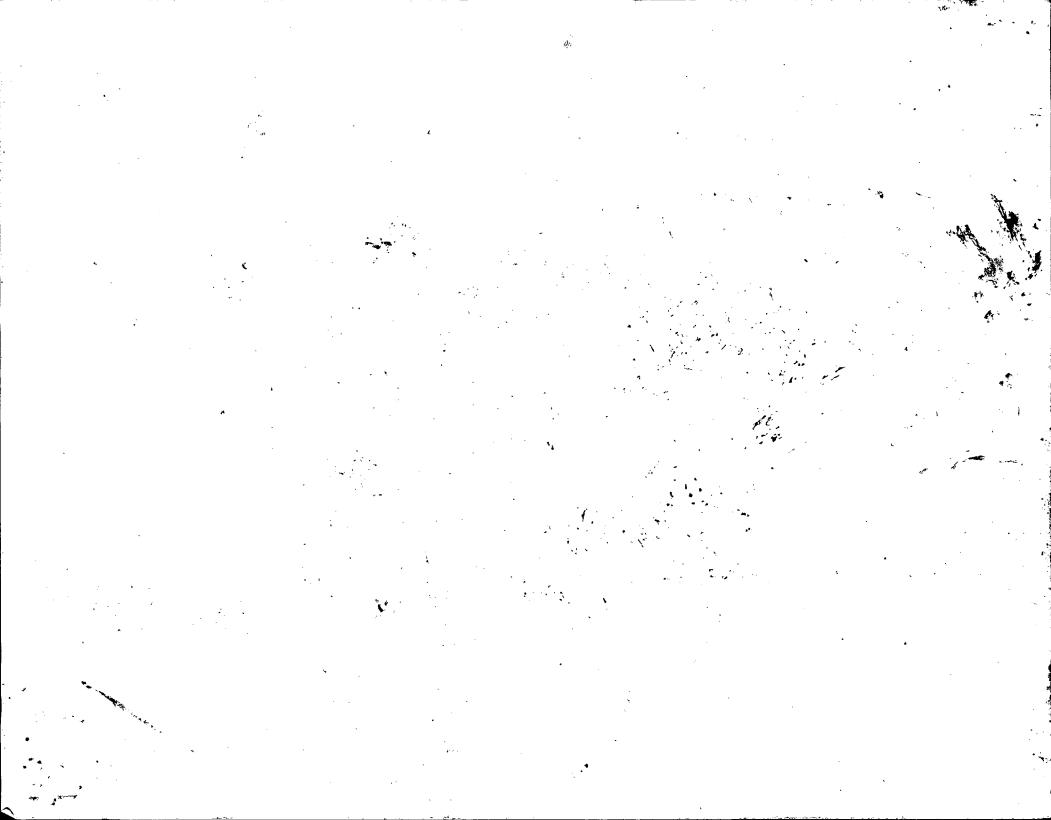
WAS: (UPDATED PER DEO D212-664-141-D-1)

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 MASK UNDERSIDE OF CROSSTUBE AS SHOWN IN DEO D212-664-141-D-1 PAINT OUTSIDE PER DART QSI 005 4.2 REMOVE MASKING AND APPLY CLEAR COAT



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# REFERENCE ONLY

# DART AEROSPACE LTD.

IIN-D212-664

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### 5.0 PARTS LIST

#### HIGH GEAR CROSSTUBES

item	-101	-201	-203	Part Number	Description
	х			D212-664-101	CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
		x		D212-664-201	CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
			х	D412-664-203	CROSSTUBE INSTALLATION, 412 HIGH AFT
1	1			D212-664-141	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
2		1		D212-664-241	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
3		-	1	D412-664-243	CROSSTUBE ASSEMBLY, 412 HIGH AFT
				* D2893-1	SUPPORT
10	2			* D3595-063-450	RUBBER CUSHION
11	4			* MS21920-25	CLAMP (OR MS21042-26)
12_	4 -4-			-AN6-35A	:BOLT
13 14	4=			-AN6-36A	-BOLT
15	<u>-6</u>			-MS21042L6	=NUT:(OR:MS2.1042-6)
16	=18==			-AN960JD616	-WASHER
20		2		* D2940-1	SUPPORT
21		4		* D3595-063-530	RUBBER CUSHION
22		4		* MS21920-28	CLAMP (OR MS21042-30)
23		4		AN6-40A	BOLT
24		2		AN6-41A MS21042L6	NUT (OR MS21042-6)
25		6		AN960JD616	WASHER
26	<b>_</b>	18	<del></del>	WIARONTOIO	TTT NOT TELL Y
- 20	<del> </del>		1	* D2896-1	SUPPORT
30 32	<del> </del>		2	* D3595-063-570	RUBBER CUSHION
32	<del> </del>		4	* MS21920-28	CLAMP
34	<del> </del>		2	* MS21920-30	CLAMP (OR MS21042-32)
35	<del>                                     </del>		4	AN6-40A	BOLT
36	<del>                                     </del>		2	AN6-41A	BOLT
37	<del> </del>		6	MS21042L6	NUT (OR MS21042-6)
38			18	AN960JD616	WASHER
	<b></b>			* D3189-1	CHAFING SHIELD
39	ì		2	_ D3169-1	OTAL ING OTHERS
			2	D3189-1	-PLACARD-

<sup>\*</sup>REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-141/-241 OR D412-664-243 ASSEMBLIES ABOVE NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AAI SKIDTUBES.

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Revision: **G** 

Date: 11.08.30



# LIQUID PENETRANT TEST REPORT

**P-** 12684

ACUREN	EIGOID	,,,	104111120		
	1 0			1	PAGEOF
CLIENT DA	nt Apro)PACE		DATE	Nov. 13/12	TIME AM Z PM 🗆
ATTENTION	ANDY		ACUREN JOB NO.	188-12	C0815
ADDRESS 127	ABEN DEEN ST.	,	PO/WO No.		
114.1	KESBIRY ON		WORK LOCATION	SALE	
<u> </u>	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			ASTM 1417/051-030	REV./DATE 2005
PROJECT	EVI on	1 (1)	OSS Tubb	= \$	
		(B)	737		
ITEM(S) EXAMINED			·		
JOB DESCRIPTION	PROCEDURE NO. LT-	2 REV /DATE	2008 1	ECHNIQUE NO. LT	REV./DATE 2008
	SEE RESULTS	-ALV.IDAIL	MATERIAL ALW		CKNESS (Julious
PART NO.		NYE F	EUE TA	NT IN SPEN	
SCOPE A WET	4.4	<del></del>		E OULY.	1070 65715
COMPLETED (	W /AE 100 b	of THE	SULFAC	<u> </u>	
TEST DETAILS	7.5		WATER WASH	□ SOLVENT REMO	OVABLE POST EMULSIFIED
	FLUORESCENT UVISI	BLE	BLACK LIGHT S/N	16454 - OUTPUT > 1000	
PENETRANT ZLG	A 110	Min.	LIGHTING EQUIP.	FLASHLIGHT TROUBLELIGH	T OUTPUT>100 fc @ SURFACE
PENETRANT REMOVER		>10 <b>M</b> in.	OTHER L	ABIND	2000
DEVELOPER Ski) S.	MINIMUM DWELL TIME	10 Min.  □ DRY	LIGHT METER S/N	108869	CAL DUE DATE
DEVELOPER TYPE  TEST SURFACE	ON AQUEOUS	U DRY	<u> </u>		
	s Ground	:D	MACHINED	SHOT BLASTED	CLEAN BARE METAL
SURFACE TEMPERATURE   <		F то 10°C/50°		✓ 10°C/50°F TO 52°C/125°	F □ > 52°C/125°F
RESULTS- (DI	METRIC   IMPERIAL)				
ITEM	COMMENTS	CCEPT REJECT			
ceossa	BE WO.O.				<><>>
1 - " "	(92705	8	Pizzlu ku		
1 - "	1 62039				
1 "	92413				
	10.13				
Place					
Scope of Services The agreement of Acuren Group Inc. to per	form services extends only to those services provided j ions of opinion reflect the opinions or observations of	for in writing. Under	no circumstances shall such	h services extend beyond the performance of	the requested services. It is expressly understood
representations or warranties Acuren Gro	up Inc. is not assuming any responsibilities of the own	rer/operator and the c	owner/operator retains comp	siele responsibility for the engineering, mani	facture, repair and use decisions as a result of the
Ctandoud of Com	en Group Inc. In no event shall Acuren Group Inc.'s l				ilar locality. No other warranty expressed or
In performing the services provided, Acurer implied, is made or intended by Acuren Gra	n Group Inc. uses the degree, care and skill ordinarily oup Inc.	exercisea unaer simi	tar circumstances by others	perjorming such services in the same or sim	ital locality. To other warranty, expressed or
SIGNATURES					
CLIENT REPRESENTATIVE	Andy Sheldon		Sheldon	DTR#	E-120256.
TECHNICIAN (SIGNATURE):	PRINT		SIGNATURE .	REPORT	
TEOTHNICIAN (SIGNATURE).	711-14-1			REVIEWED BY:	N
NAME (PRINT):	18 TECHNICIAN		2 <sup>NO</sup> TECHNICIAN	·	NAME INITIALS
	CGSB LEVEL SNT LEVEL	CGSB LEV		EVEL	
•	CGSB REG. NO (6006	CGSB RE	g. <b>N</b> o		